Jun 5th, 11:00 AM

Explore Science: Science Exploration Update

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NASA

EXPLORE SCIENCE

Science Exploration Update

Steve Clarke
Deputy Associate Administrator for Exploration
NASA Science Mission Directorate

Space Congress Panel

June 5, 2019

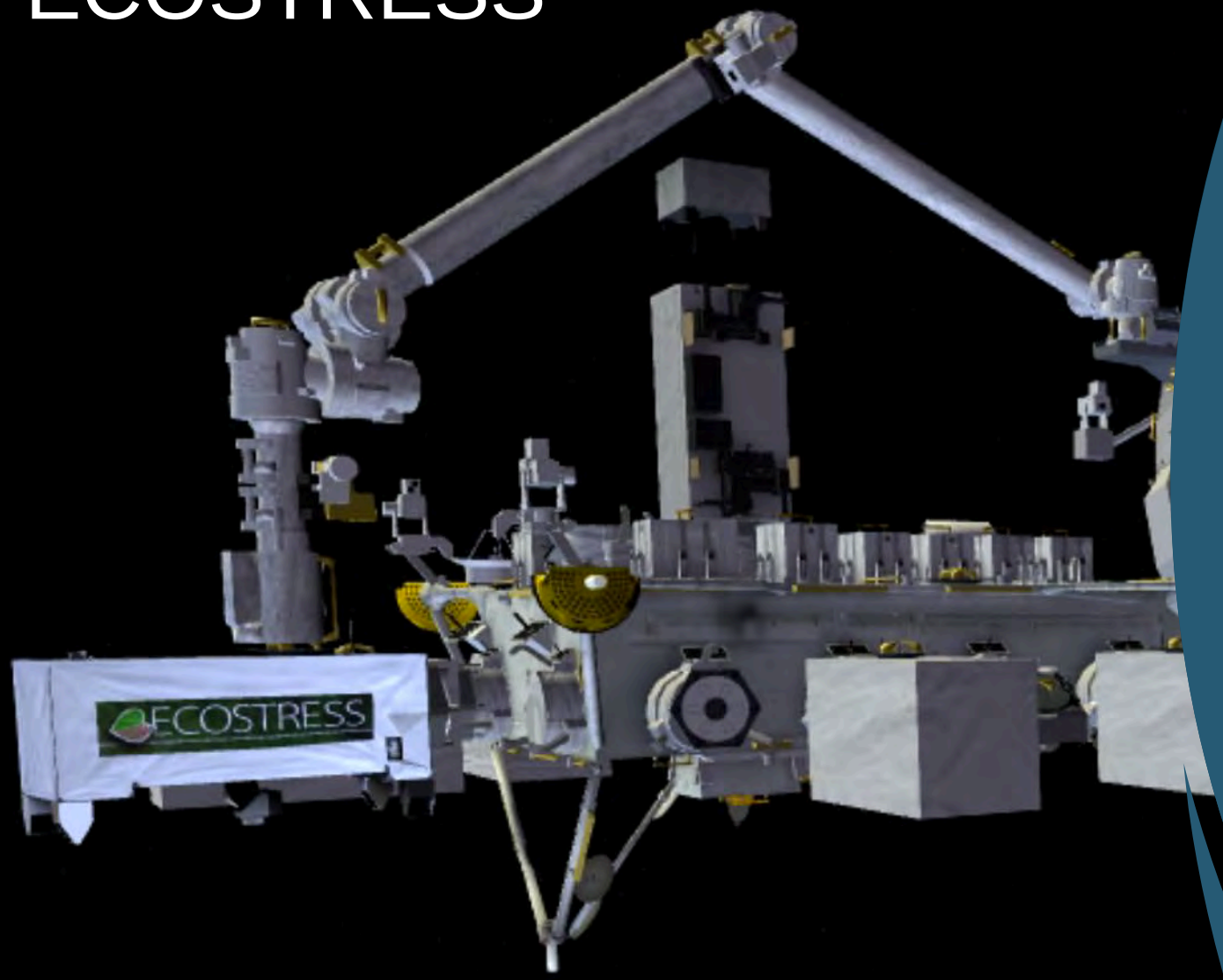
KEY SCIENCE THEMES

Protect & Improve Life on Earth

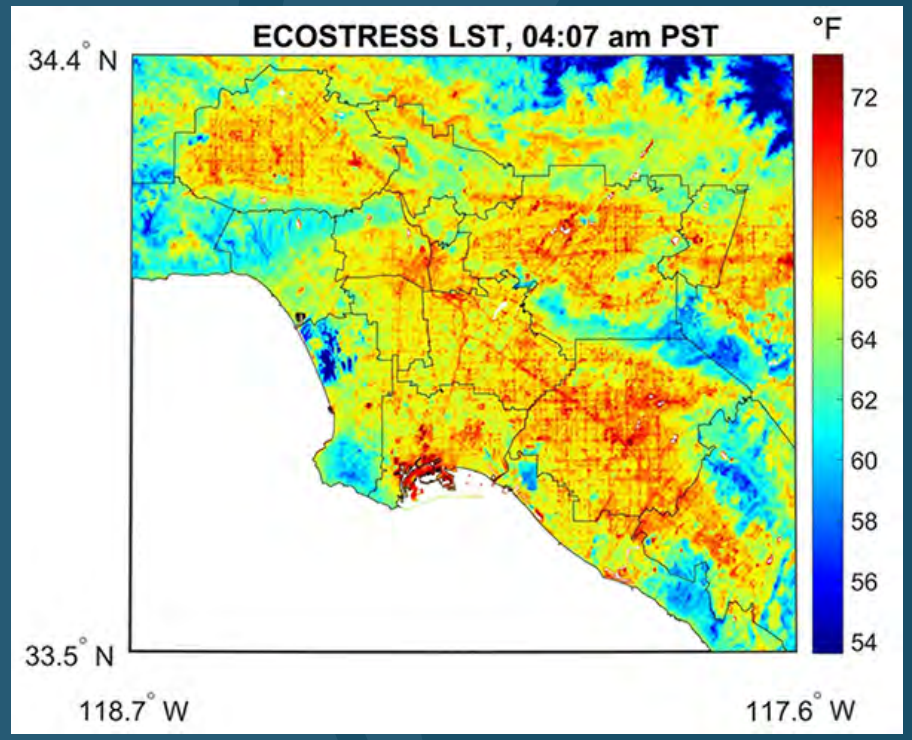
Search for Life Elsewhere

Discover Secrets of the Universe

ECOSTRESS



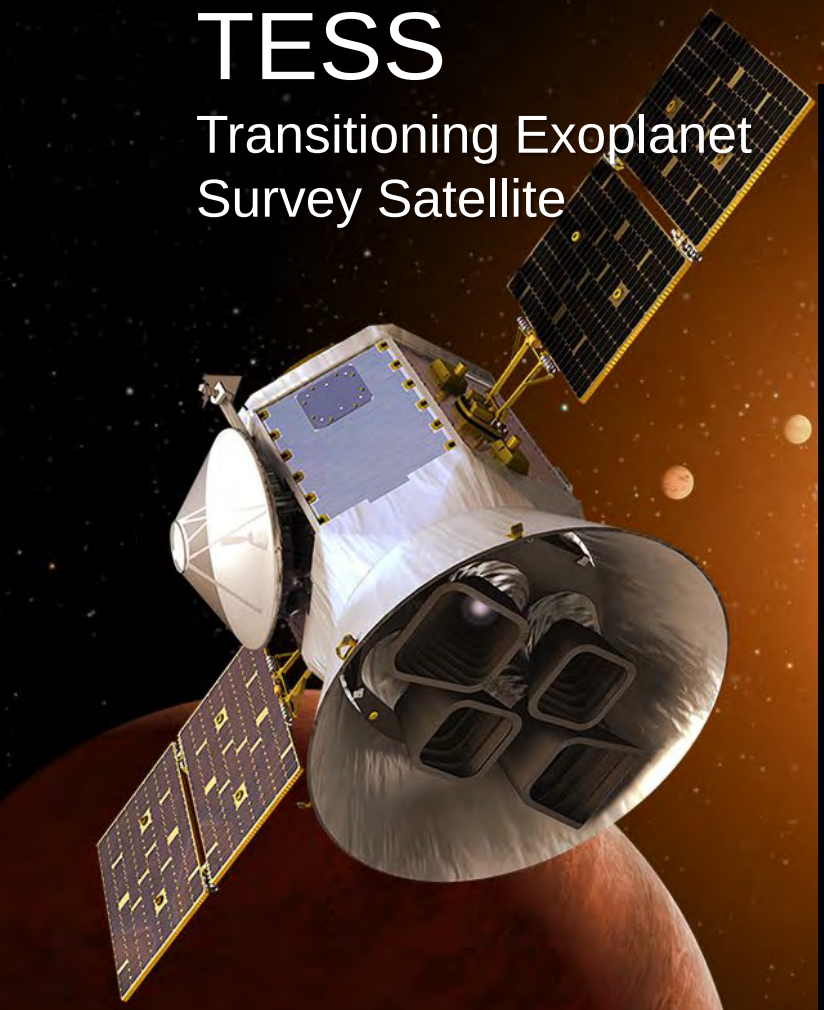
SCIENCE HIGHLIGHT



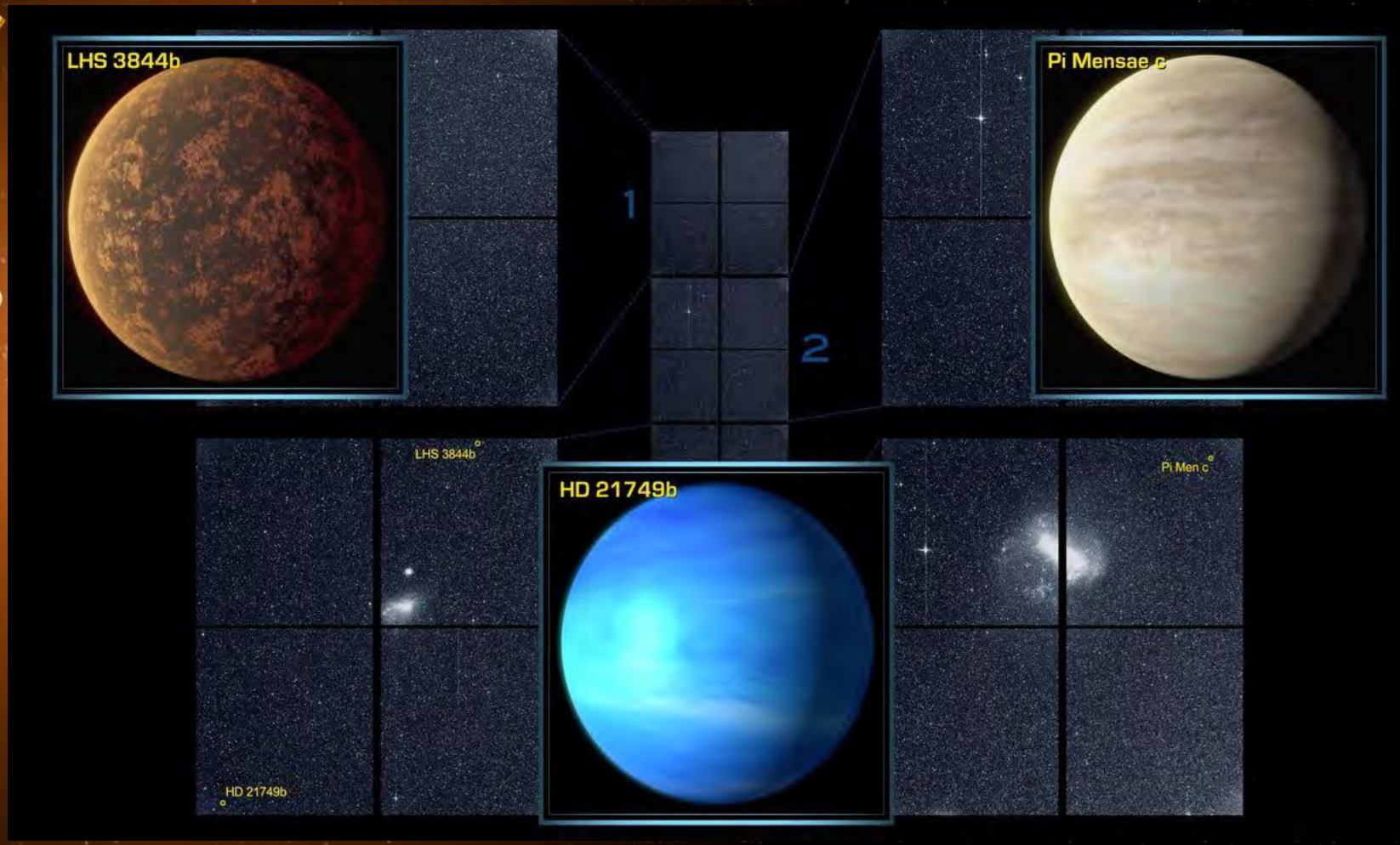
July 22, 2018 at 4:07 a.m. - ECOSTRESS showing hottest (reddest) areas are dark asphalt surfaces unshaded during the day and remain warm at night

TESS

Transitioning Exoplanet Survey Satellite



SCIENCE HIGHLIGHT

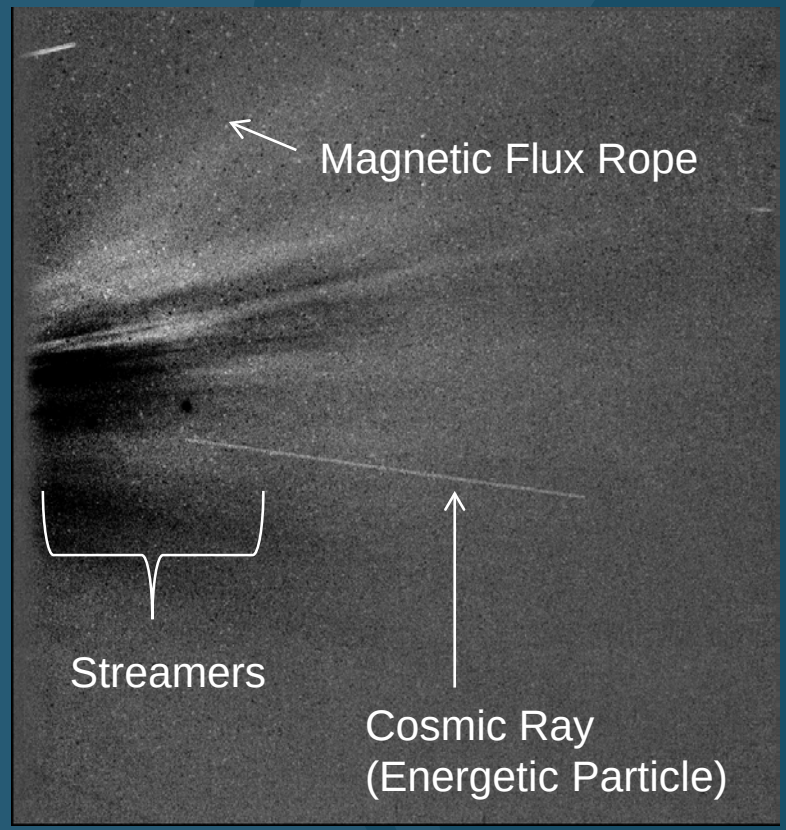


Jul. 25 - Dec. 11, 2018 - First three confirmed TESS planets: LHS 3844b, Pi Mensae c, and HD 21749b; 398 new TESS planet candidates available for follow up

Parker Solar Probe

A Mission to Touch the Sun

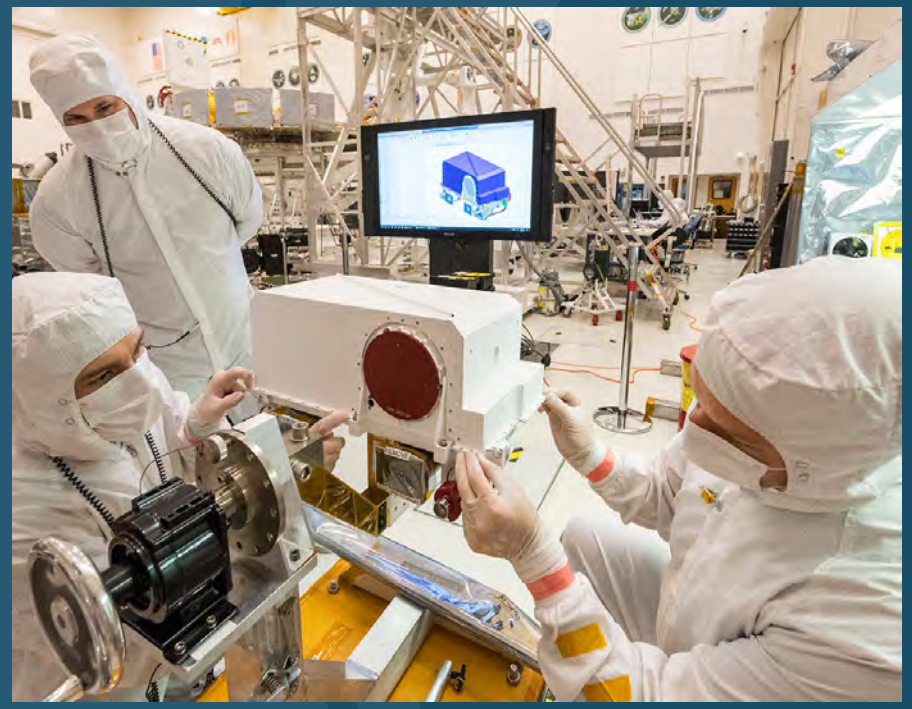
SCIENCE HIGHLIGHT



Nov. 6, 2018, 18:16 UT – Data from WISPR instrument on Parker Solar Probe during first perihelion

Mars 2020

SCIENCE HIGHLIGHT

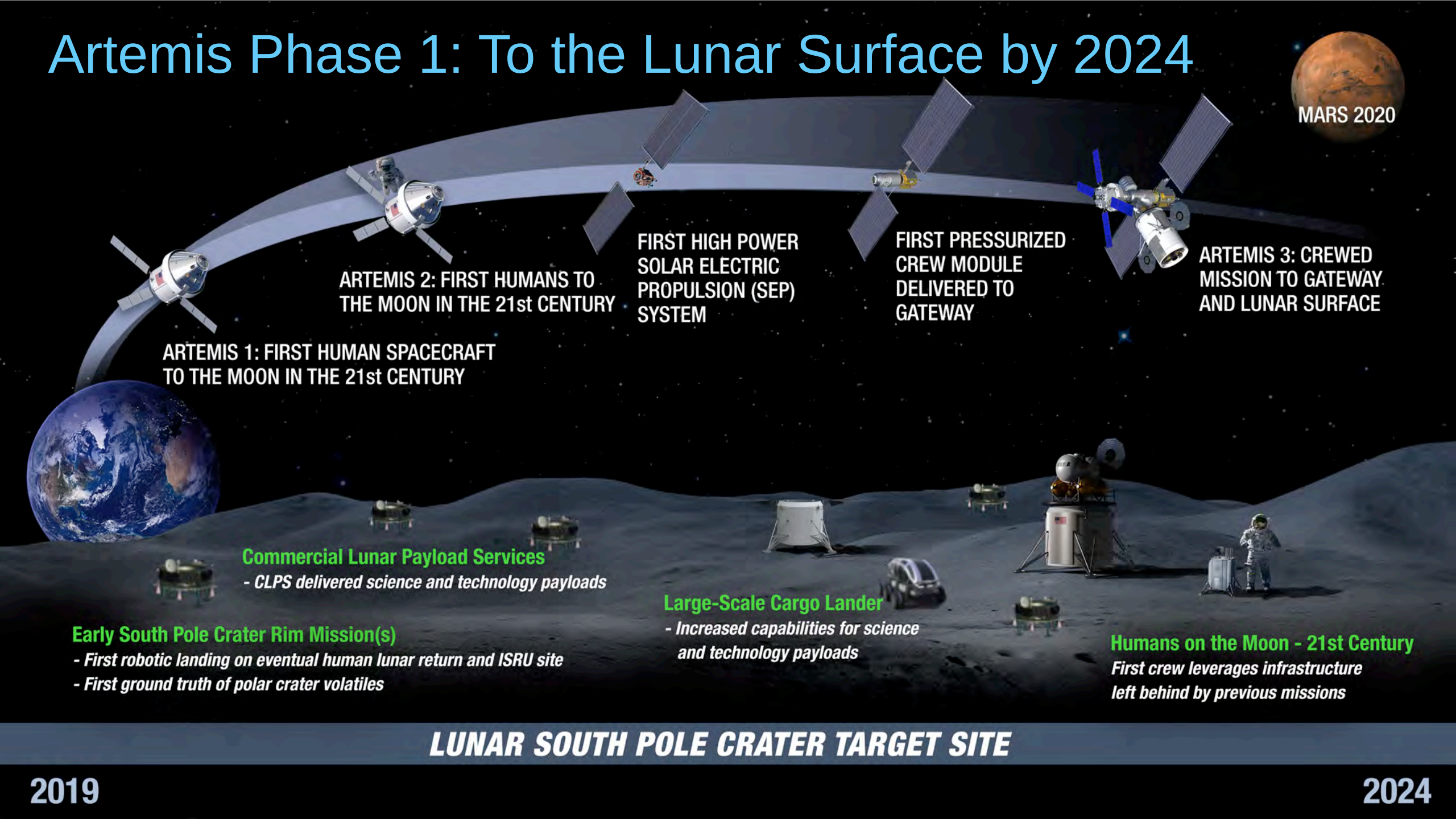


May 23, 2019 - Engineers re-install the cover to the remote sensing mast (RSM) head after integration of two Mastcam-Z high-definition cameras for the Mars 2020 rover at JPL

Science Strategy of the Moon

- Driven by community-produced documents
- Achieves Decadal Survey objectives
- Executed to NASA Science research standards
- Enables human exploration
- Uses precursor robotics by the Commercial Lunar Payload Services (CLPS) contract and Gateway opportunities, instrument development awards, AOs, and international contributions
- Develops exploration science mission plan for first human return mission

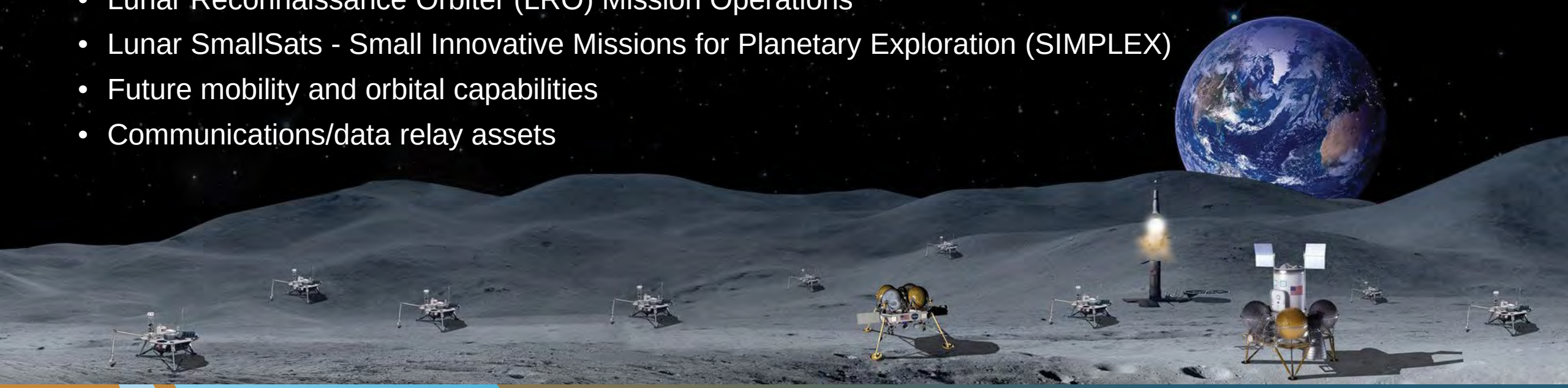
Artemis Phase 1: To the Lunar Surface by 2024



Lunar Discovery and Exploration Program (LDEP)

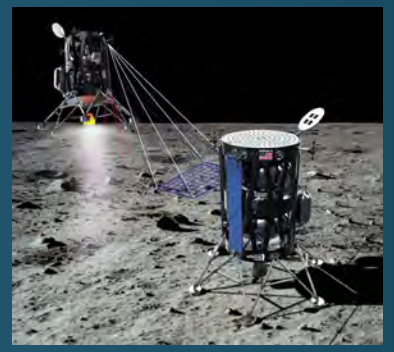
LDEP is a key component of the National Exploration Campaign, including

- Commercial Lunar Payload Services (CLPS)
- Instrument Development
  - To fly on CLPS landers
  - Development and Advancement of Lunar Instrumentation (DALI)
- Lunar Reconnaissance Orbiter (LRO) Mission Operations
- Lunar SmallSats - Small Innovative Missions for Planetary Exploration (SIMPLEX)
- Future mobility and orbital capabilities
- Communications/data relay assets



CLPS Selections

Astrobotic



Intuitive Machines

Orbit Beyond

- May 31, 2019 NASA selects first Commercial Moon Landing Services for Artemis Program to deliver science and technology to the Moon
  - Astrobotic of Pittsburgh awarded $79.5 million to fly as many as 14 payloads to Lacus Mortis, by July 2021
  - Intuitive Machines of Houston awarded $77 million to fly as many as five payloads to Oceanus Procellarum by July 2021
  - Orbit Beyond of Edison, New Jersey awarded $97 million to fly as many as four payloads to Mare Imbrium, by September 2020

International Partnerships

- The SpaceIL lunar lander, Beresheet, carried a NASA-provided laser retroreflector assembly (LRA)
- The NASA DSN provided support to the lander team as part of an NASA-Israel Space Agency cooperative agreement
- Chandrayaan-2 will be carrying an identical LRA


NASA
EXPLORE MOON to MARS
MOON LIGHTS THE WAY